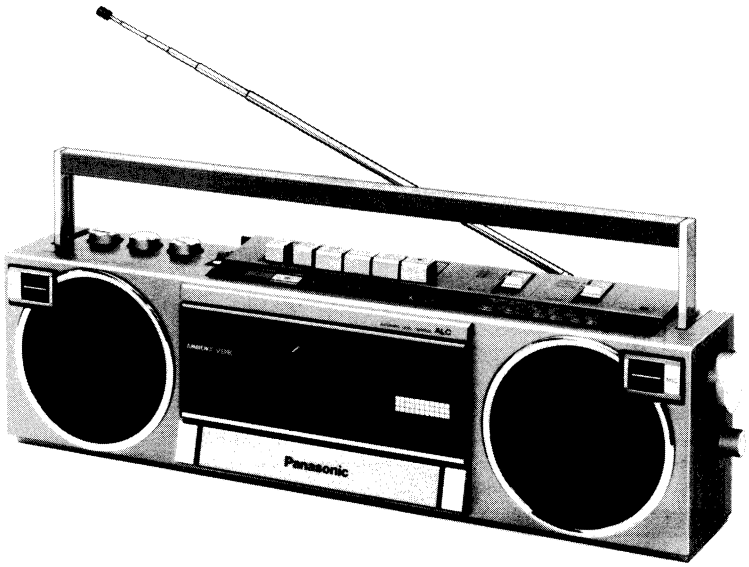
ORDER NO. GAD83122151C2

Service Manual

Radio Cassette

RX-F2LS/LE

FM-LW-MW-SW
Stereo Radio Cassette Recorder



■ SPECIFICATIONS

General:

Power Requirement:	AC; 220 V, 50 Hz AC; 240 V, 50 Hz (For U.K.) Battery; 9 V (Six "D" Size Flashlight Batteries) (National UM-1 or equivalent) Car battery; with optional car adaptor RP-917
Power Consumption:	16 W (AC only)
Power Output:	7 W (3.5 W×2) . . . MPO 7 W (3.5 W×2) . . . RMS (max.)
Speaker:	10 cm (4") PM Dynamic Speaker (3Ω)
Input:	DC IN; 9 V
Output:	EXT SP; 3~8Ω HEADPHONES; 32Ω
Dimensions:	428 mm(W)×133 mm(H)×100 mm(D) (16 7/8×5 1/4×3 7/8)"
Weight:	2.5 kg (5 lb. 8 oz.) without batteries

Radio Section:

Radio Frequency Range:	FM; 87.5~108 MHz LW; 150~285 kHz (2000~1060 m) MW; 520~1610 kHz (577~186 m) SW; 5.9~18 MHz (50.8~16.7 m)
Intermediate Frequency:	FM; 10.7 MHz AM (LW/MW/SW); 455 kHz, 470 kHz (For U.K.)
Sensitivity:	FM; 2.8μV (−3 dB Limit sens) LW; 112μV/m/50 mW output MW; 116μV/m/50 mW output SW; 9.2μV/50 mW output

Tape Deck Section:

Frequency Response:	100~8,000 Hz (with normal tape)
Recording system:	DC bias, MAGNET erase
Tape Speed:	4.8 cm/s, (1 7/8 ips)
Wow and Flutter:	0.13% (WRMS)
Program Time:	1 hour with C-60 cassette tape
Track System:	4-track 2 channel stereo recording and playback

Specifications are subject to change without notice.

Panasonic

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

LOCATION OF CONTROLS AND COMPONENTS

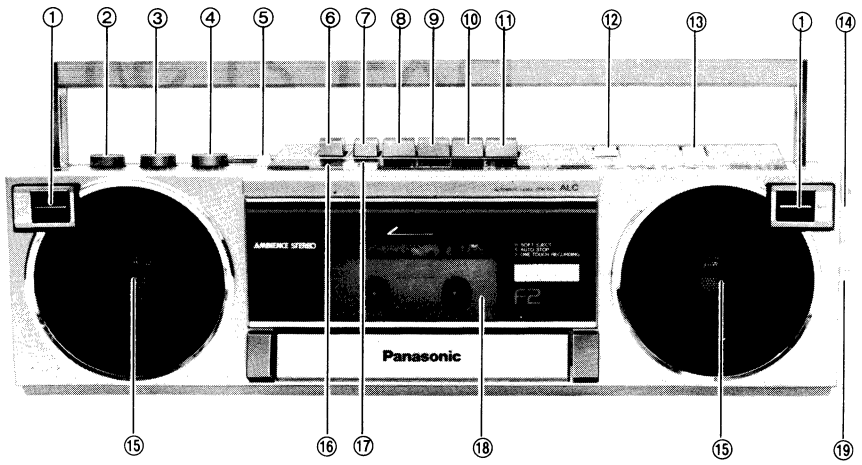


Fig. 1

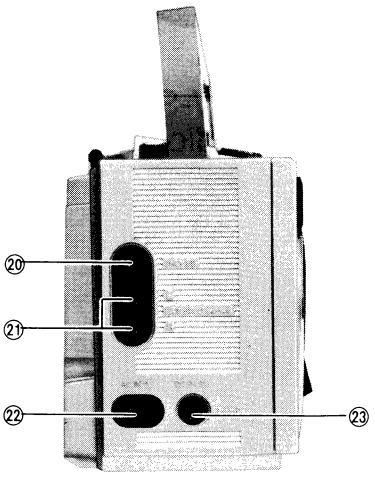


Fig. 2

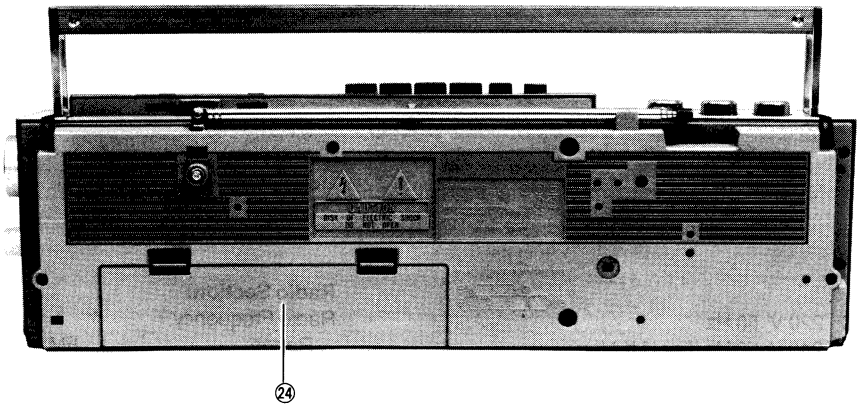


Fig. 3

① Built-in Microphones (MIC)
② Volume Control (VOLUME)
③ Balance Control (BALANCE)
④ Tone Control (TONE)
⑤ Function Switch (RADIO, TAPE/OFF)
⑥ Pause Button (PAUSE)
⑦ Stop/Eject Button (STOP/EJECT)
⑧ Fast Forward Button (FF)
⑨ Rewind Button (REWIND)
⑩ Playback Button (PLAY)
⑪ Record Button (RECORD)
⑫ Band Switch (FM, LW, MW, SW)
⑬ Mode Switch (AMBIENCE, STEREO, FM MONO)
⑭ Tuning Control (TUNING)
⑮ Built-in Speakers 10 cm (4"), 3Ω
⑯ Operation Indicator (OPERATION)
⑰ FM Stereo Indicator (FM STEREO)
⑱ Cassette Compartment
⑲ Fine Tuning Control (FINE TUNING)
⑳ Headphone Jack (PHONES), 32Ω, ∅3.5
㉑ External Speaker Jacks (EXT SP IMP 3–8Ω), ∅3.5
㉒ AC Socket (AC IN ~)
㉓ DC Input Jack (DC IN 9 V⊖-⊖-⊕)
㉔ Battery Compartment

DISASSEMBLY INSTRUCTIONS

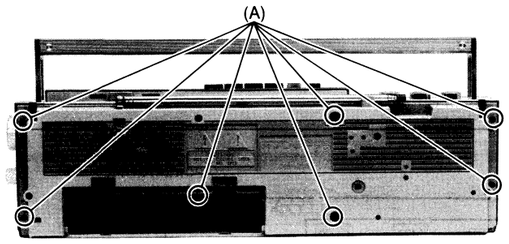


Fig. 4

Fig. 5

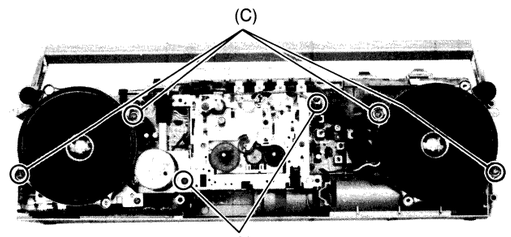


Fig. 6

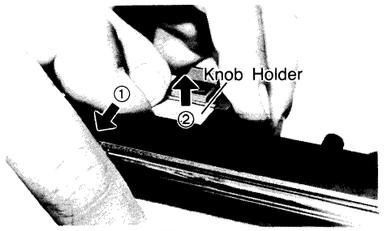


Fig. 8

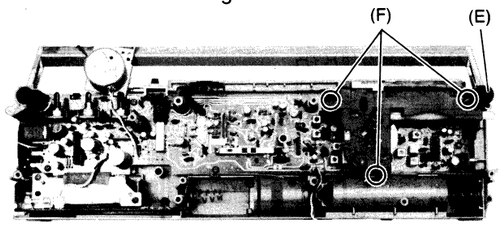


Fig. 9

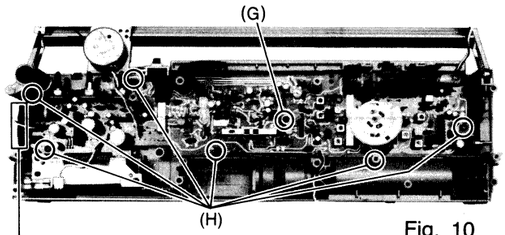


Fig. 10

When removing the Circuit Board, the jack board will go out, so be careful not to forget when assemble the Circuit Board.

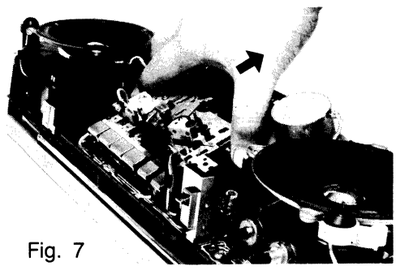


Fig. 7

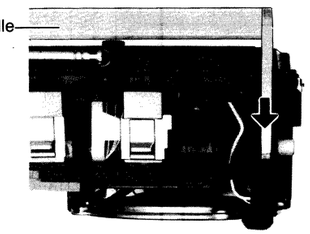


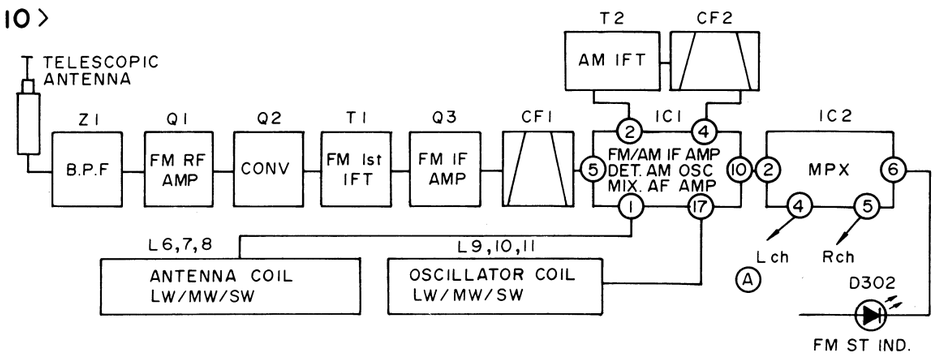
Fig. 11

Procedure	Procedure	Shown in Fig—.	To remove—.	Remove—.
1	1~4	——	Front cabinet	Remove the battery cover.
2		4		Screw (3×35) ..... (A)×7
3		5		Knob ..... (B)×5
4		——		Push the eject button.
5	1~5	6	Speaker	Screw (3×12) ..... (C)×4
6	1~4, 6, 7	6	Mechanism	Screw (3×12) ..... (D)×2
7		7		Remove the meachanism in the direction of arrow.
8	1~8	8	Knob holder	Remove the holder in the direction of arrow ① and ②.
9	1~10	9	Dial chassis* Note: Turn the tuning shaft to fully counter-clockwise.	MIC ..... (E)×1
10		9		Screw (3×12) ..... (F)×3
11	1~12	10	Circuit board	Screw (3×20) ..... (G)×1
12		10		Screw (3×12) ..... (H)×6
13	1~4, 13	11	Handle	Push in the direction of arrow.

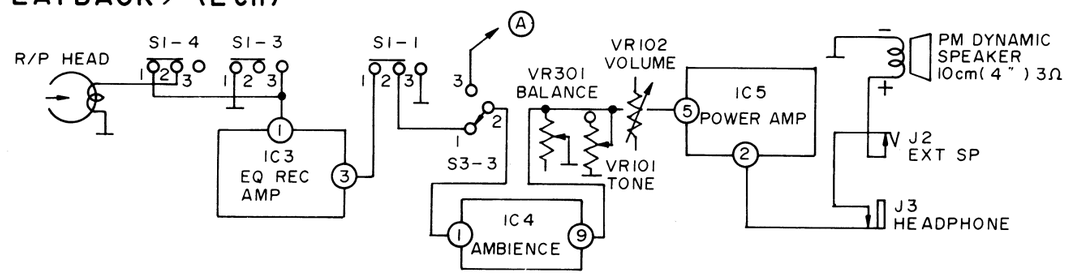
*To reassemble the dial chassis, note the following.
1. Turn the dial drum to fully counter-clockwise. 2. Set the dial pointer to start point.

BLOCK DIAGRAM

<RADIO>



<PLAYBACK> (Lch)



<RECORDING> (Lch)

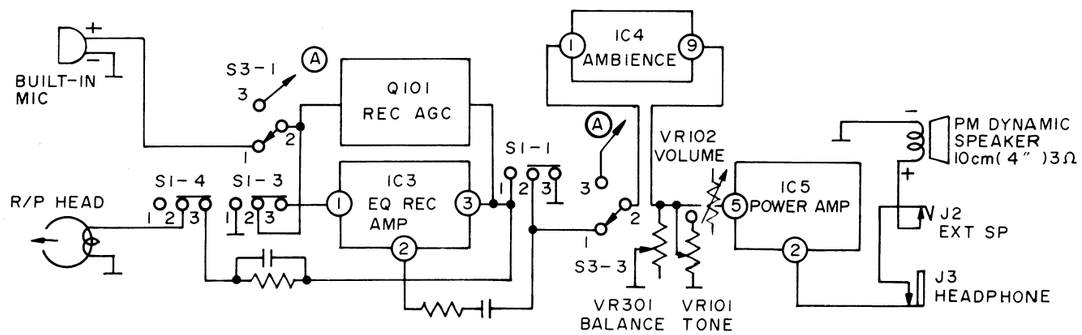
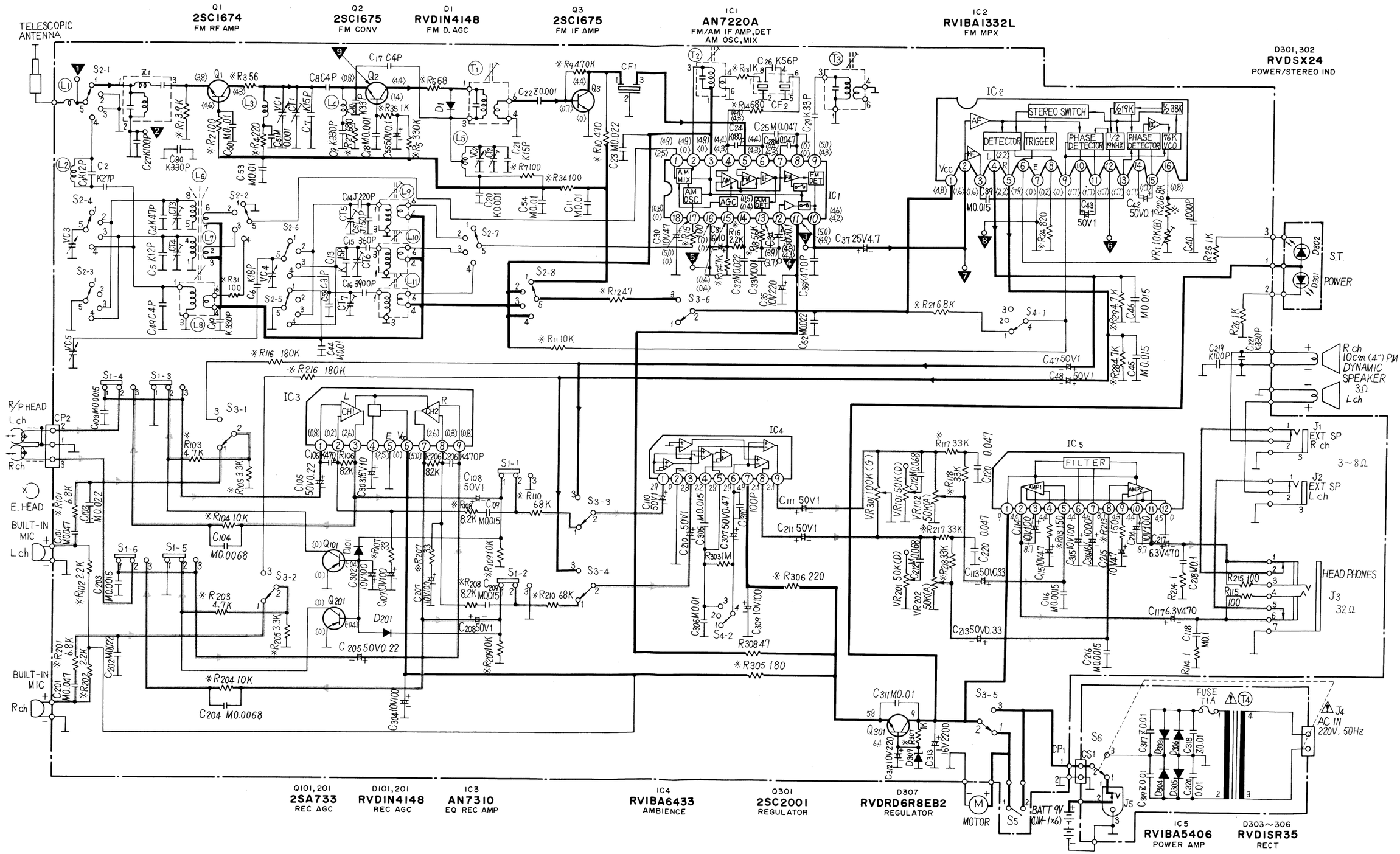


Fig. 12

SCHEMATIC DIAGRAM MODEL RX-F2LS/LE



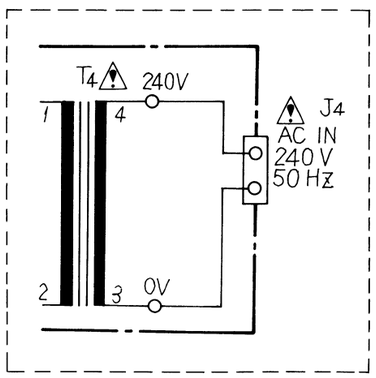
CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RX-F2LS/LE

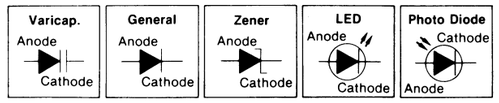
Notes:

1. S1-1~S1-6: Record/playback switch in "playback" position. (1 . . . Playback, 3 . . . Record)
2. S2-1~S2-8: Band switch in "FM" position. (1 . . . FM, 2 . . . LW, 3 . . . MW, 4 . . . SW)
3. S3-1~S3-6: Function switch in "TAPE/OFF" position. (1 . . . TAPE/OFF, 3 . . . RADIO)
4. S4-1, S4-2: Mode switch in "FM MONO" position. (1 . . . FM MONO, 2 . . . STEREO, 3 . . . AMBIENCE)
5. S5: Motor switch in "OFF" position.
6. S6: AC/DC IN select switch in "DC IN" position.
7. VR1: VCO oscillator frequency adjust VR.
8. VR101, 201: Tone control.
9. VR102, 202: Volume control.
10. VR301: Balance control.
11. The mark (▼) shows test point e.g.▼=test point 1.
12. The mark (*) shows printed-type resistors.
13. DC voltage measurement are taken with electronics voltmeter from negative terminal of battery.
    < > . . . FM position, ( ) . . . AM position,
    [ ] . . . Recording position, No mark . . . Playback position.
14. Battery current: No signal . . . . . 70 mA
    Maximum output (radio) . . . . . 825 mA
    Maximum output (tape) . . . . . 920 mA
15. Important safety notice
    Components identified by ⚠ mark have special characteristics important for safety.
    When replacing any of these components, use only manufacturer's specified parts.

— + Ⓑ Voltage Line
⟶ Radio (FM) Signal Line
Tape (PLAYBACK) Signal Line
Tape (RECORD) Signal Line

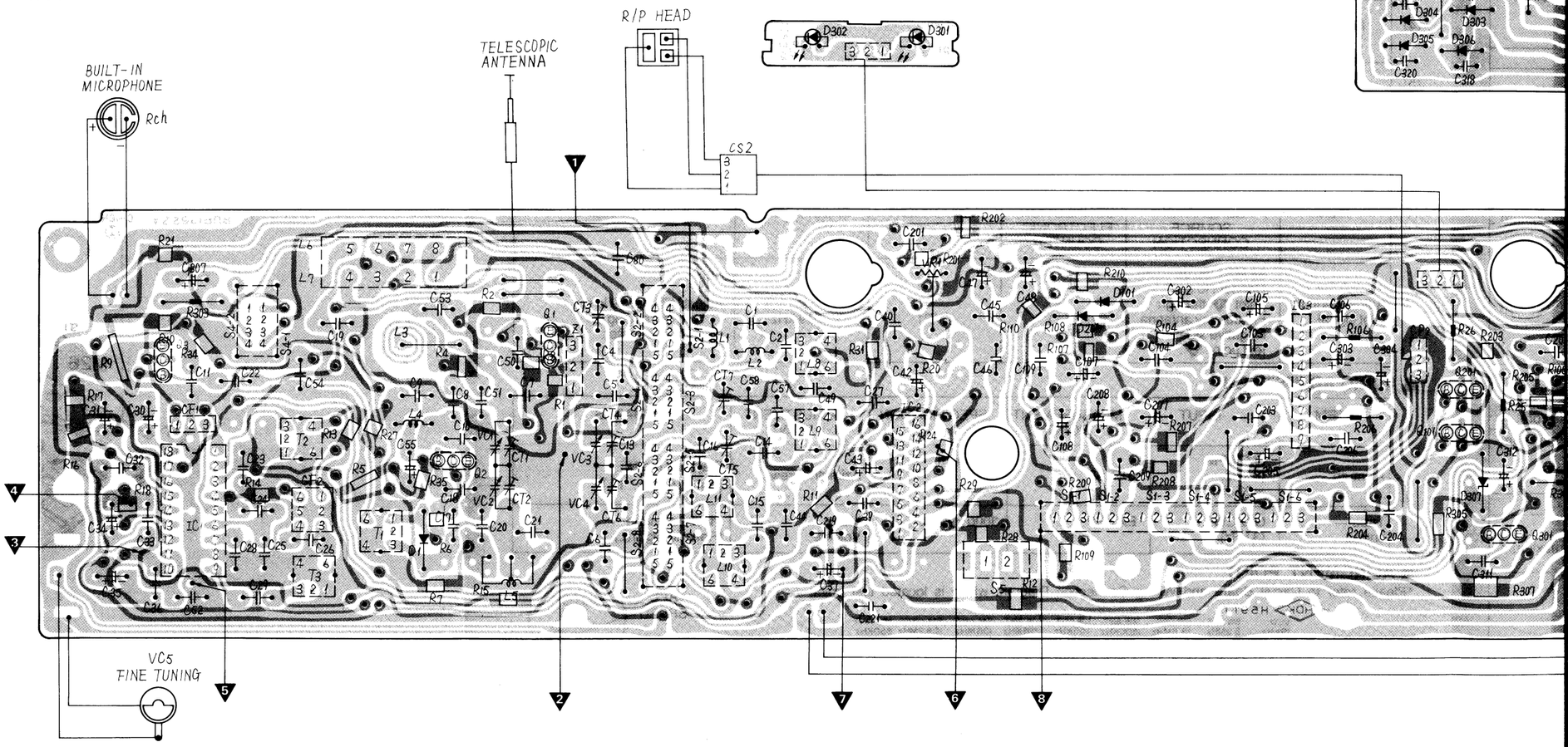
For U.K.

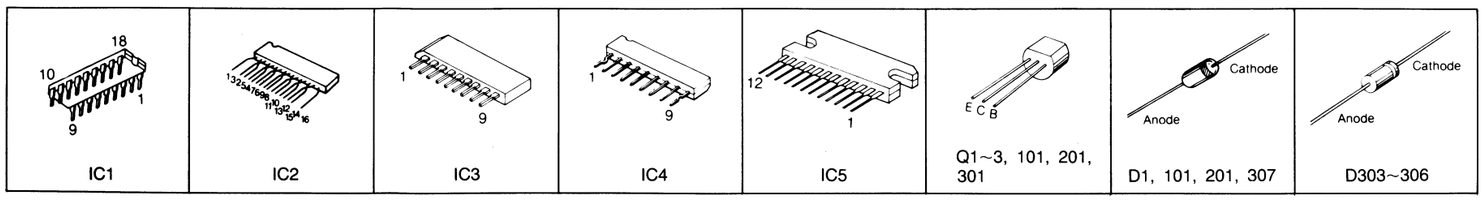




Notes:

1. The circuit shown in ▭ on the conductor indicates printed circuit on the front side of the printed circuit board.
2. The symbols (•) shown in the circuit board indicate connection points between conductors on the front side and back side of the circuit board.
3. The symbols (□) shown in the circuit board indicate printed resistors.





RX-F2LS/LE

CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM MODEL RX-F2LS/LE

ED	Photo Diode
Cathode	Cathode / Anode

uctor indicates printed
circuit board.
ard indicate connection
de and back side of the

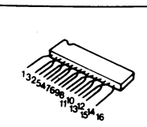
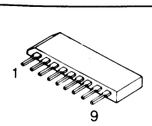
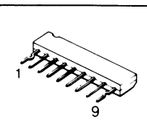
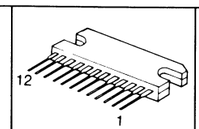
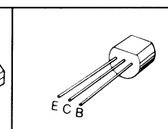
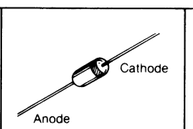
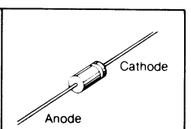
board indicate printed

BATTERIES (9V)
UM-1 x 6

CAUTION
RISK OF ELECTRIC SHOCK
AC voltage line. Please do not touch this portion.

J4 AC IN
S6
T4
J5 DC IN
FUSE T1A

R/P HEAD
TELESCOPIC ANTENNA
CS2
CS1
BUILT-IN MICROPHONE
Lch
HEADPHONES
J3
EXT SP Lch
J2
EXT SP Rch
J1
MOTOR
Lch
PM DYNAMIC SPEAKER
10cm (4")
3Ω
Rch

IC2	IC3	IC4	IC5	Q1~3, 101, 201, 301	D1, 101, 201, 307	D303~306
						

RX-F2LS/LE RX-F2LS/LE

MEASUREMENTS AND ADJUSTMENTS

■ ALIGNMENT INSTRUCTION

READ CAREFULLY BEFORE ATTEMPTING ALIGNMENT

1. Set volume control to maximum.
2. Set tone control to treble.
3. Set band switch to LW, MW, SW or FM.
4. Set balance control to center.
5. Set mode switch to stereo.
6. Set function switch to radio.
7. Set fine tuning to center.
8. Set power source voltage to 9 V DC.
9. Output of signal generator should be no higher than necessary to obtain an output reading.

■ LW, MW and SW ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
			AM-IF ALIGNMENT				
(1)	MW	Fashion loop of several turns of wire and radiate signal into loop of receiver.	455 kHz 30% Mod. at 400 Hz 470 kHz (U.K.)	Point of non-interference. (on/ about 600 kHz)	Output meter across voice coil.	T2 (AM IFT)	Adjust for maximum output.
			LW-RF ALIGNMENT				
(2)	LW	,,	136 kHz	Tuning capacitor fully closed.	,,	L9 (LW OSC Coil)	,,
(3)	LW	,,	297 kHz	Tuning capacitor fully open.	,,	CT5 (LW OSC Trimmer)	,,
(4)	LW	,,	145 kHz	Tune to signal.	,,	(*1) L6 (LW ANT Coil)	Adjust for maximum output. Adjust L6 by moving coil bobbin along ferrite core.
(5)	LW	,,	285 kHz	,,	,,	CT3 (LW ANT Trimmer)	Adjust for maximum output. Repeat steps (2)~(5).
			MW-RF ALIGNMENT				
(6)	MW	,,	511 kHz	Tuning capacitor fully closed.	,,	L10 (MW OSC Coil)	Adjust for maximum output.
(7)	MW	,,	1,650 kHz	Tuning capacitor fully open.	,,	CT6 (MW OSC Trimmer)	,,
(8)	MW	,,	550 kHz	Tune to signal.	,,	(*1) L7 (MW ANT Coil)	Adjust for maximum output. Adjust L7 by moving coil bobbin along ferrite core.
(9)	MW	,,	1,500 kHz	,,	,,	CT4 (MW ANT Trimmer)	Adjust for maximum output. Repeat steps (6)~(9).
	(*1) Cement antenna bobbin with wax after completing alignment.						
			SW-RF ALIGNMENT				
(10)	SW	Connect to test point ▼ through ceramic capacitor (10 pF) Negative side to test point ▼2.	5.75 MHz	Tuning capacitor fully closed.	,,	L11 (SW OSC Coil)	Adjust for maximum output.
(11)	SW		18.8 MHz	Tuning capacitor fully open.	,,	CT7 (SW OSC Trimmer)	,,
(12)	SW		5.9 MHz	Tune to signal.	,,	L8 (SW ANT Coil)	Adjust for maximum output. Repeat steps (10)~(12).

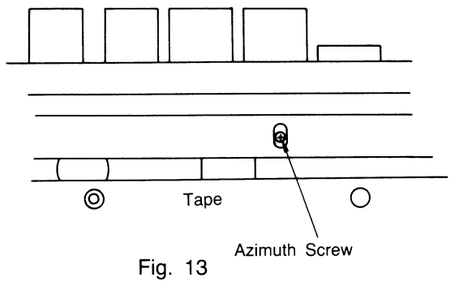


Fig. 13

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR CONNECTIONS	SIGNAL GENERATOR or SWEEP GENERATOR FREQUENCY	RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
			FM-IF ALIGNMENT				
(1)	FM	High side thru. 0.001μF to test point ▼, Negative side to test point ▼2.	10.7 MHz (SWP.)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point ▼. Negative side to test point ▼2.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 16.)
(2)	FM	,,	,,	,,	,,	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 17.)
			FM-RF ALIGNMENT				
(3)	FM	Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼2.	87.5 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L5 (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		109.2 MHz	Variable capacitor fully open.	,,	CT2 (FM OSC Trimmer)	,,
(5)	FM		106 MHz	Tune to signal	,,	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(5).
	(*2) Three output responses will be present; proper tuning is the center frequency.						

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98 MHz, 60 dB (CW) Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼2.	▼... (+) ▼2... (−)	VR1	19 kHz	Adjust VR1, for 19 kHz (±100 Hz) reading on electronics counter.

■ AUDIO ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8 kHz, −20 dB)	EXT SP	Maximum output.	Azimuth screw	Playback mode (Refer to Fig. 13.)
Tape speed	QZZCWAT (3 kHz)	EXT SP	3000±90 Hz	Motor Volume	Playback mode (Refer to Fig. 15.)

■ ALINGMENT POINT

*Please refer to Circuit Board and Wiring Connection Diagram which is located test point.

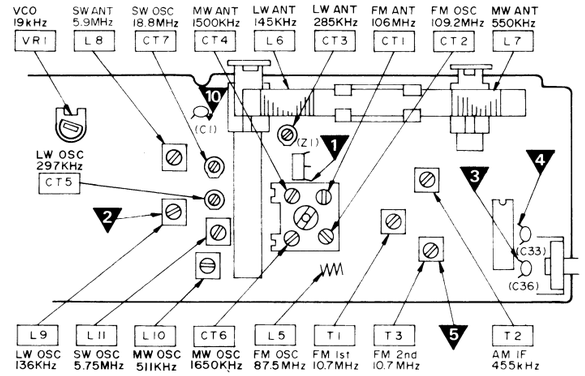


Fig. 14

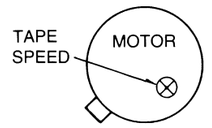


Fig. 15

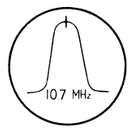


Fig. 16

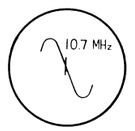
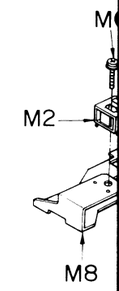


Fig. 17



■ SPECIFIC

Pressure of pr
Takeup torque
Tension of de
Wow & flutter
Tape speed fl

Mechanism Ope

■ FM ALIGNMENT

	BAND	SIGNAL GENERATOR or SWEEP GENERATOR		RADIO DIAL SETTING	INDICATOR (ELECTRONICS VOLTMETER or SCOPE)	ADJUSTMENT	REMARKS
		CONNECTIONS	FREQUENCY				
		FM-IF ALIGNMENT					
(1)	FM	High side thru. 0.001μF to test point ▼, Negative side to test point ▼.	10.7 MHz (SWP.)	Point of non-interference. (on/ about 90 MHz)	Connect vert. amp. of scope to test point ▼. Negative side to test point ▼.	T1 (FM 1st IFT)	Adjust for maximum amplitude. (Refer to fig. 16.)
(2)	FM	〃	〃	〃	〃	T3 (FM 2nd IFT)	Adjust for maximum amplitude. (Refer to fig. 17.)
		FM-RF ALIGNMENT					
(3)	FM	Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼.	87.5 MHz	Variable capacitor fully closed.	Output meter across voice coil.	L5 (FM OSC Coil)	(*2) Adjust for maximum output.
(4)	FM		109.2 MHz	Variable capacitor fully open.	〃	CT2 (FM OSC Trimmer)	〃
(5)	FM		106 MHz	Tune to signal	〃	CT1 (FM ANT Trimmer)	(*2) Adjust for maximum output. Repeat steps (3)~(5).
	(*2) Three output responses will be present; proper tuning is the center frequency.						

■ SEPARATION ALIGNMENT

ITEM	FM SIGNAL GENERATOR SOURCE CONNECTION	EQUIPMENT CONNECTION ELECTRONIC COUNTER	ADJUSTMENT	SPECIFICATION	REMARKS
Adjustment of pilot signal.	98 MHz, 60 dB (CW) Connect to test point ▼ through FM dummy antenna. Negative side to test point ▼.	▼... (+) ▼... (−)	VR1	19 kHz	Adjust VR1, for 19 kHz (±100 Hz) reading on electronics counter.

■ AUDIO ADJUSTMENT

ITEM	INPUT	MEASUREMENT POINT	SPECIFICATION	ADJUSTMENT POINT	REMARKS
Azimuth	QZZCFM (8 kHz, −20 dB)	EXT SP	Maximum output.	Azimuth screw	Playback mode (Refer to Fig. 13.)
Tape speed	QZZCWAT (3 kHz)	EXT SP	3000±90 Hz	Motor Volume	Playback mode (Refer to Fig. 15.)

■ ALINGMENT POINT

*Please refer to Circuit Board and Wiring Connection Diagram which is located test point.

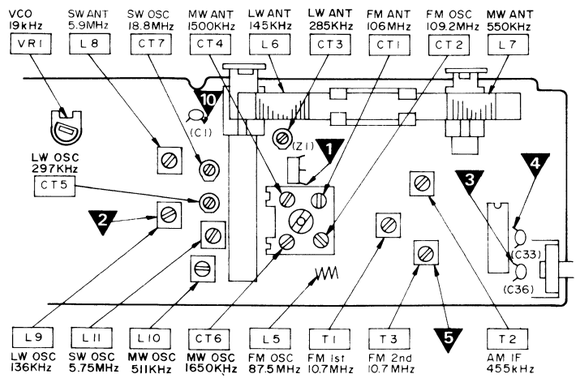


Fig. 14

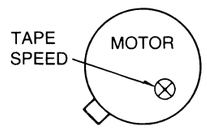


Fig. 15

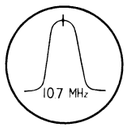


Fig. 16

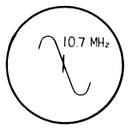


Fig. 17

MECHANISM PARTS LOCATION

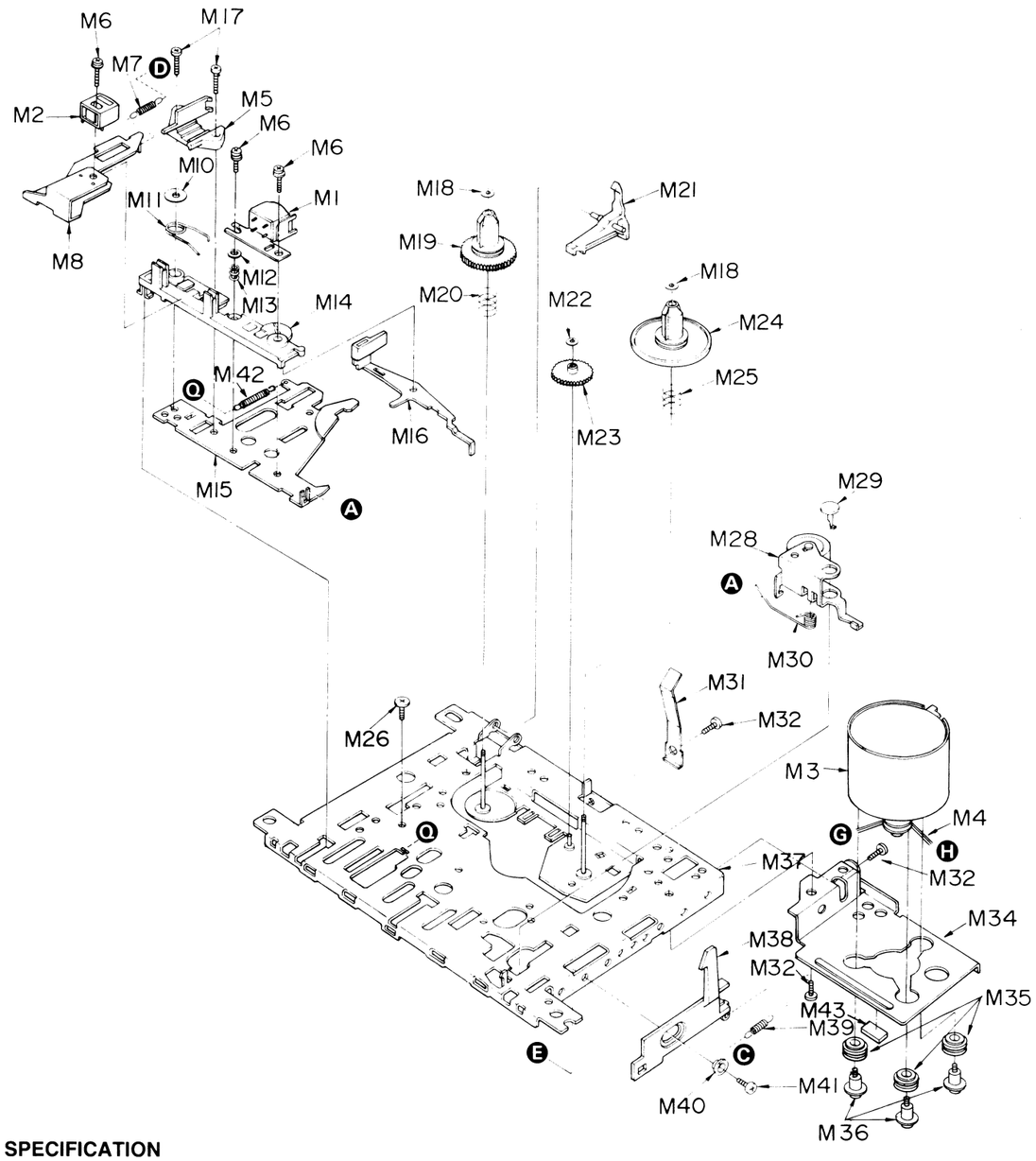


Fig. 18

■ SPECIFICATION

Pressure of pressure roller	380±50 gr
Takeup torque	55±15 gr-cm
Tension of detect piece	65±10 gr
Wow & flutter	Less than 0.35% (WRMS)
Tape speed fluctuation	±3%

Mechanism Operation: Auto Stop

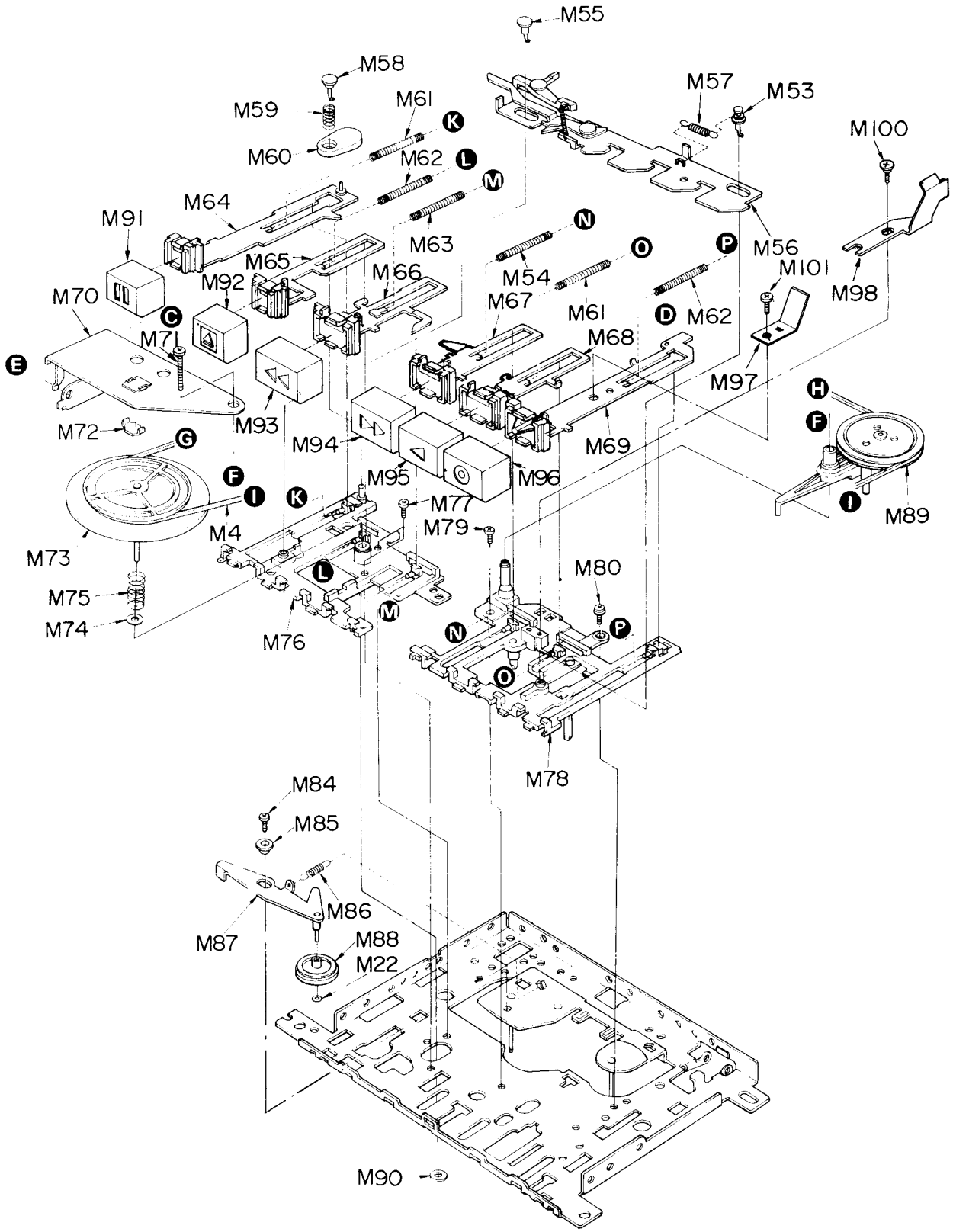

M55
M58
M59
M61
M60
M62
M57
M53
M100
M64
M91
M63
M56
M65
M92
M66
M54
M67
M61
M62
M101
M98
M70
M71
M68
M97
M72
M93
M94
M69
M95
M96
M89
M73
M4
M77
M79
M80
M75
M74
M76
M78
M84
M85
M86
M87
M88
M22
M90

Fig. 19

CABINET PARTS LOCATION

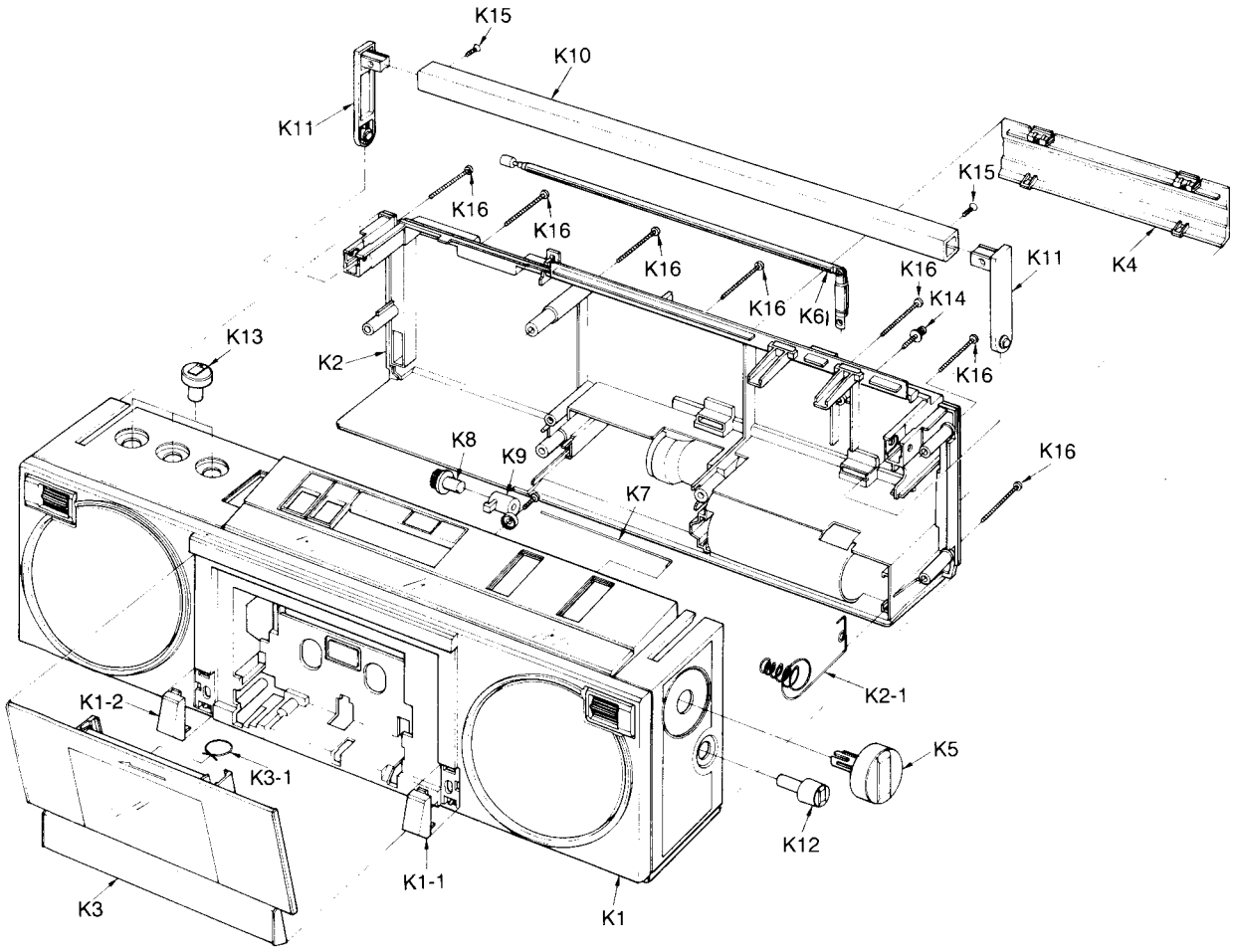


Fig. 20

ELECTRICAL PARTS LOCATION

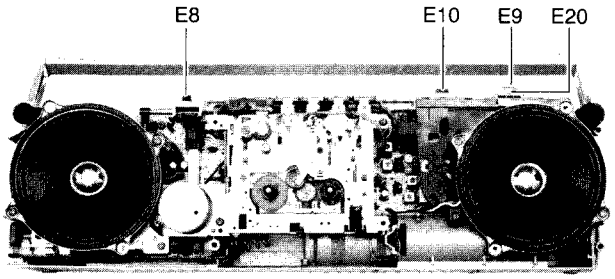


Fig. 21

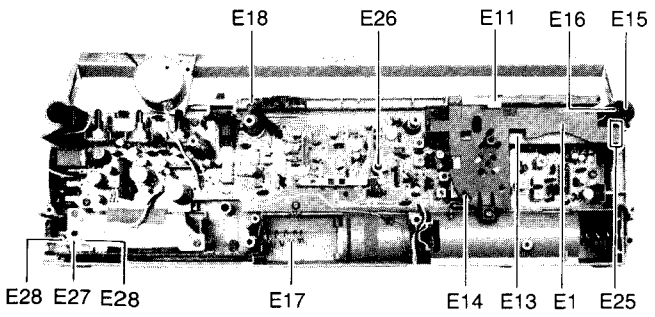


Fig. 22

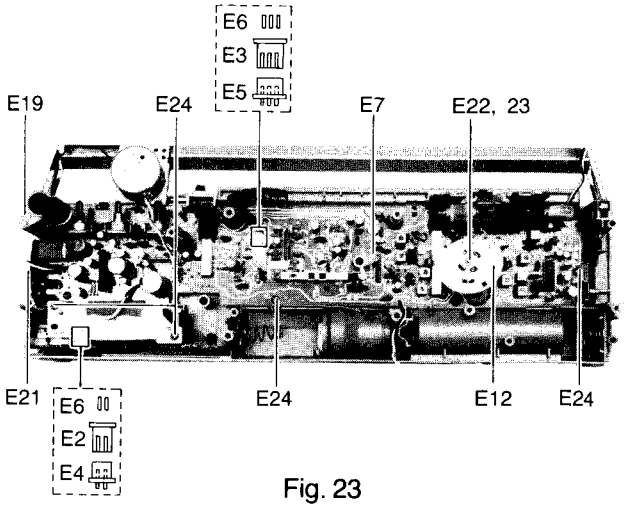


Fig. 23

■REPLACEMENT PARTS LIST····· RX-F2LS/LE

(GAD83122151C2)

Notes:

1. Important safety notice.
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
2. The S mark indicates service standard parts and may differ from production parts.
3. RESISTORS & CAPACITORS
   Unless otherwise specified.
   All resistors are in OHMS (Ω) K=1000Ω, M=1000kΩ
   All capacitors are in MICRO FARADS (μF) P=μμF

*Type & Wattage of Resister

Type

ERC:Solid	ERX:Metal Film	ERW:Wirewound Resister
ERD:Carbon	ERG:Metal Oxide	ERS:Fusible Resister
RRD:Chip	ERO:Metal Film	ERF:Cement Resister

Wattage

10,16:1/8W	14,25:1/4W	12:1/2W	1:1W	2:2W	3:3W

*Type & Voltage of Capacitor

Type

ECFW:Semi-conductor	ECCD,ECKD,ECBT:Ceramic
ECQS:Styrol	ECQM,ECQV,ECQG:Polyester
ECUX:Chip	ECEA,ECSZ :Electrolytic
ECMS:Mica	ECQP :Polypropylene

Voltage

ECQ Type	ECQG, ECQV, Type	ECSZ Type	Others	
1H: 50V	0,5: 50V	0F:3.15V	0J :6.3V	1H,1V,50: 50V
2A:100V	1:100V	1A:10V	1A :10V	1J : 63V
2E:500V	2:200V	1V:35V	1C :16V	2A :100V
2H:500V		0J:6.3V	1E,25:25V	

Ref. No.	Part No.	Part Name & Description	Per Set
		MECHANICAL PARTS	
M1	RJH2E9Z	R/P Head	1
M2	RJH5S3Z	Erase Head	1
M3	RFM26Z	Motor Ass'y	1
M4	RFB38Z	Main Belt	1
M5	RFE72Z	Erase Head Base	1
M6	RFE89Z	Screw, Erase Head, R/P Head M'tg	3
M7	RFS361Z	Spring, Erase Head Base Plate	1
M8	RFD156Z	Erase Head Base Plate	1
M10	RFN104Z	Washer, Erase Head Base	1
M11	RFS362Z	Spring, RC	1
M12	RFN89Z	Washer, R/P Head	1
M13	RFS166Z	Spring, R/P Head	1
M14	RFD157Z	Head Base	1
M15	RFD164Z	Head Panel	1
M16	RFY257Z	Detector Plate Ass'y	1
M17	XSN2+W8	Screw, Erase Head Base M'tg	2
M18	RFN105Z	Washer, Reel Table Ass'y	2
M19	RFJ28Z	Supply Reel Table Ass'y	1
M20	RFS314Z	Spring, Back Tension	1
M21	RFY256Z	REC Safety Lever	1
M22	SMQ4930	Washer, Middle Gear	2
M23	RFG43Z	Middle Gear	1
M24	RFJ33Z	Take Up Reel Table Ass'y	1
M25	RFS363Z	Spring, Back Tension	1
M26	RFE44Z	Collar Screw, Button Base (R) M'tg	1
M28	RFR18Z	Pinch Roller Ass'y	1
M29	SMQ4774	Stopper, Pinch Roller Arm	1
M30	RFS365Z	Spring, Pinch Roller	1
M31	RFS240Z	Spring, Cassette Pressure	1
M32	XTN26+4F	Screw, Motor Bracket Cassette Pressure	3
M34	RFD165Z	Motor Bracket	1
M35	RFI21Z	Rubber	3
M36	RFE22Z	Collar Screw, Motor Ass'y M'tg	3
M37	RFU25Z	Chassis Ass'y	1
M38	RFY327Z	Eject Slide Lever	1
M39	RFS368Z	Spring, Eject Slide Lever	1
M40	RFX80Z	Collar Eject Slide Lever	1
M41	RFE126Z	Screw, Eject Slide Lever M'tg	1
M42	RFS375Z	Spring, Head Panel	1
M43	RFI23Z	Mat, Motor Bracket	1
M53	RFE132Z	Operation Plate B	1
M54	RFS377Z	Spring, REW Button Lever	1
M55	RFE116Z	Operation Plate	1
M56	RFY343Z	Pressure Button Operation Plate Ass'y	1
M57	RFS376Z	Spring, Operation Plate	1
M58	SMQ4862	Stopper, Pause Lever	1
M59	RFS321Z	Spring, Pause Lever	1
M60	RFY40Z	Pause Lever	1
M61	RFS319Z	Spring, Play Button, Pause Button Lever	2
M62	RFS316Z	Spring, Stop Button, REC Button Lever	2
M63	RFS318Z	Spring, FF Button Lever	1
M64	RZL1XF2FXKSN	Pause Lever Ass'y	1
M65	RZL2XF2FXKSN	Stop/Eject Lever Ass'y	1
M66	RZL3XF2FXKSN	FF Lever Ass'y	1
M67	RZL4XF2FXKSN	REW Lever Ass'y	1
M68	RZL5XF2FXKSN	Play Lever Ass'y	1
M69	RZL6XF2FCKSN	Record Lever Ass'y	1
M70	RFD154Z	Flywheel	1
M71	XTB2+9G	Screw, Flywheel	1
M72	SMQ2538	Flywheel	1
M73	RFF24Z	Flywheel Ass'y	1
M74	RFN107Z	Nylon Washer, Flywheel	1
M75	RFS313Z	Spring, FL Thrust	1
M76	RFU22Z	Button Base (L)	1
M77	XTN2+5F	Screw, Button Base (L) M'tg	2
M78	RFU26Z	Button Base (R)	1
M79	RFE128Z	Collar Screw, Button Base (R) M'tg	1
M80	RFE117Z	Collar Screw, Button Base (R) M'tg	1
M84	XTN2+4B	Screw, Take Up Roller Arm M'tg	1 S
M85	RFX79Z	Collar, Take Up Roller Arm	1
M86	RFS312Z	Spring, Take Up Roller Arm	1
M87	RFY336Z	Take Up Roller Arm	1
M88	RFQ28Z	Take Up Roller Ass'y	1
M89	RFQ30Z	RF Pulley Arm Ass'y	1
M90	RFN106Z	Nylon Washer, Flywheel	1
M91	RBC511Z	Pause Button	1
M92	RBC512Z	Stop/Eject Button	1
M93	RBC513Z	FF Button	1
M94	RBC514Z	REW Button	1
M95	RBC515Z	Play Button	1
M96	RBC516Z	Record Button	1
M97	RUS535Z	Record Lever	1
M98	RUB289Z	Play Lever	1
M100	RHE5056Z	Screw, Play Lever M'tg	1
M101	XSN26+3	Screw, Record Lever M'tg	1 S
		INTEGRATED CIRCUITS, TRANSISTORS AND DIODES	
IC1	AN7220A	IC	1
IC2	RVIBA1332L	IC	1
IC3	AN7310	IC	1
IC4	RVIBA6433	IC	1
IC5	RVIBA5406	IC	1
Q1	2SC1674K	Transistor (Si)	1

Ref. No.	Part No.	Part Name & Description	Per Set
Q2,3	2SC1675K1	Transistor (Si)	2
Q101,201	2SA733-P1	Transistor (Ge)	2 S
Q301	2SC2001K1	Transistor (Si)	1
D1,101, 201	RVD1N4148	Diode (Si)	3
D301	RVDSX24	Diode (Si)	1
D303∿306	RVD1SR35	Diode (Si)	4
D307	RVDRD6R8EB2	Diode (Si)	1
		COILS AND TRANSFORMERS	
L5	RLD4Y43	Oscillator Coil, FM	1
L6,7	RLF6W152	Antenna Coil, LW, MW	1
L8	RLA3B41	Antenna Coil, SW	1
L9	RLO1B12	Oscillator Coil, LW	1
L10	RLO2B108	Oscillator Coil, MW	1
L11	RLO3B87	Oscillator Coil, SW	1
T1,3	RLI4B153	FM IFT	2 S
T2	RLI2B153	AM IFT	1
T4	RLT5Z3G3A	Power Transformer, Except U.K.	1 ⚠
T4	RLT5Z3A4A	Power Transformer, For U.K.	1 ⚠
		VARIABLE RESISTORS	
VR1	EVNM4AA00B14	Variable Resistor, Preset, 10kΩ (B)	1 S
VR101,201	EWCVVAF15D54	Variable Resistor, 50kΩ (D)	1
VR102,202	EWCUVAF15A54	Variable Resistor, 50kΩ (A)	1
VR301	EWHGHAF15G15	Variable Resistor, 100kΩ (G)	1
		VARIABLE CAPACITORS	
VC1∿4	RCV4RC2RA	Tuning Capacitor, W/Trimmer Capacitor (CT1,2,4,6)	1
VC5	RCVMH4UC16	Fine Tuning	1
CT3	RCVTZ30F	Trimmer Capacitor	1
CT5	RCVTZ20F	Trimmer Capacitor	1
CT7	RCVTZ11F	Trimmer Capacitor	1
		CERAMIC FILTERS	
CF1	RVFSFE107MAZ	Ceramic Filter	1
CF2	RVFSFZ455A	Ceramic Filter, Except U.K.	1
CF2	QCRZZ470A7W	Ceramic Filter, For U.K.	1
		COMPONENT COMBINATION	
Z1	RXABPMB6AW	Component Combination	1
		SPEAKERS	
	RAS10P17Z	Speaker, 10cm(4"), 3Ω , PM Dynamic	2
		SWITCHES	
S1	RSH2F08Z	Switch, Record/ Playback	1
S2	RSS4H03Z	Switch, Band	1
S3	RSS2F06Z	Switch, Function	1
S4	RSS3B26Z	Switch, Mode	1
S5	RSH1A35Z	Switch, Motor	1
S6	Refer to J4,5	Switch, AC/DC IN	
		JACKS	
J1,2	RJJ1D20Z	Jack, EXT SP	2
J3	RJJ1D11Z	Jack, Headphone	1
J4,5	RJJ1F2Z	Jack, AC/DC IN	1 ⚠
		CABINET PARTS	
K1	RYMXF2LSXGK8	Front Cabinet Ass'y, Silver	1
K1	RYMXF2LEXEK8	Front Cabinet Ass'y, Silver, For U.K.	1 ⚠
K1	RYMXF2LSXGK1	Front Cabinet Ass'y, Metalic Brown , Except U.K. & France	1
K1	RYMXF2LEXEK1	Front Cabinet Ass'y, Metalic Brown, For U.K.	1 ⚠

Ref. No.	Part No.	Part Name & Description	Per Set
K1	RYMXF2LSXGK2	Front Cabinet Ass'y, Red	1
K1	RYMXF2LEXEK2	Front Cabinet Ass'y, Red For U.K.	1 ⚠
K1	RYMXF2LSGK91	Front Cabinet Ass'y, White	1
K1	RYMXF2LEXK91	Front Cabinet Ass'y, White For U.K.	1 ⚠
K1-1	RGX1382Z	Ornament, Right	1
K1-2	RGX1395Z	Ornament, Left	1
K2	RYFXF2LSXGK7	Rear Cabinet Ass'y, Silver, Except U.K., Italy & France	1
K2	RYFXF2LEXEK7	Rear Cabinet Ass'y, Silver For U.K.	1 ⚠
K2	RYFXF2LSXIK7	Rear Cabinet Ass'y, Silver For Italy & France	1
K2	RYFXF2LSXGK1	Rear Cabinet Ass'y, Metalic Brown, Except U.K., Italy & France	1
K2	RYFXF2LEXEK1	Rear Cabinet Ass'y, Metalic Brown, For U.K.	1 ⚠
K2	RYFXF2LSXIK1	Rear Cabinet Ass'y, Metalic Brown For Italy	1
K2	RYFXF2LSXGK2	Rear Cabinet Ass'y, Red, Except U.K., Italy & France	1
K2	RYFXF2LEXEK2	Rear Cabinet Ass'y, Red For U.K.	1 ⚠
K2	RYFXF2LSXIK2	Rear Cabinet Ass'y, Red For Itary & France	1
K2	RYFXF2LSXGK8	Rear Cabinet Ass'y, White, Except Italy, U.K. & France	1
K2	RYFXF2LEXEK8	Rear Cabinet Ass'y, White For U.K.	1 ⚠
K2	RYFXF2LSXIK8	Rear Cabinet Ass'y, White For Italy & France	1
K2-1	RJC981Z	Terminal, Battery +, - Side	1
K3	RYQXF2LSXGKS	Cassette Lid Ass'y, For Silver Cabinet	1
K3	RYQXF2LSXGK1	Cassette Lid Ass'y, For Metalic Brown Cabinet, Except France	1
K3	RYQXF2LSXGK2	Cassette Lid Ass'y, For Red Cabinet	1
K3	RYQXF2LSXGK3	Cassette Lid Ass'y, For White Cabinet	1
K3-1	RUS527Z	Spring, Cassette Lid	1
K4	RYNXF2LSXGK3	Battery Cover Ass'y, For Silver Cabinet	1
K4	RYNXF2LSXGK4	Battery Cover Ass'y, For Metalic Brown Cabinet	1
K4	RYNXF2FXKSN1	Battery Cover Ass'y, For Red Cabinet	1
K4	RYNXF2FXKSN2	Battery Cover Ass'y, For White Cabinet	1
K5	RYTXF2FXKSN	Tuning Knob Ass'y	1
K6	XEAQCR228FAY	Telescopic Antenna	1
K7	RUS534Z	Spring, Cassette Lid	1
K8	RDG5729Z	Gear, Cassette Lid	1
K9	RME337Z	Holder, Cassette Lid	1
K10	RKX285Z3	Handle, For Silver	1
K10	RKX285Z4	Handle, Metalic Brown	1
K10	RKX285Z1	Handle, Red	
K10	RKX285Z2	Handle, White	1
K11	RKX286Z	Arm, Handle	2
K12	RBN668Z	Knob, Fine Tuning	1
K13	RBN670Z	Knob, Volume, Balance and Tone	3
K14	XYN3+F12FY	Screw, Telescopic Antenna M'tg	1
K15	XTC3+8CFN	Screw, Handle M'tg	2
K16	XTN3+35BFZ	Screw, Cabinet M'tg	7 S

RX-F2LS FRANÇAIS

■ SPECIFICATIONS

Généralités:

Alimentation:	c.a. 220 V, 50 Hz Piles: 9 V (six piles sèches de dimension D) (National UM-1 ou équivalent) Batterie pour automobile: avec adaptateur RP-917 automobile en option
Consommation:	16 W (C.A. seulement)
Puissance de sortie:	7 W (3,5 W×2) . . . RMS (max.)
Enceinte acoustique:	haut-parleur dynamique 10 cm à aimant fixe (3Ω)
Entrée:	DC IN: 9 V
Sortie:	EXT SP: 3 à 8Ω HEADPHONE: 32Ω
Dimensions (l×h×Pr) cm:	428×133×100 (16 7/8×5 1/4×3 7/8)''
Poids kg:	2,5 sans piles

Section radio:

Gamme de fréquence radio:	FM: 87,5 à 108 MHz GO: 150 à 285 kHz (2000 à 1060 m) PO: 520 à 1610 kHz (577 à 186 m) OC: 5,9 à 18 MHz (50,8 à 16,7 m)
Fréquence intermédiaire:	FM: 10,7 MHz AM (GO/PO/OC): 455 kHz
Sensibilité:	FM: 2,8μV (−3 dB Seuil de sensibilité) GO: 112μV/m pour une sortie de 50 mW PO: 116μV/m pour une sortie de 50 mW OC: 9,2μV pour une sortie de 50 mW

Section platine magnétophone:

Réponse de fréquence:	100 à 8.000 Hz (avec bande normale)
Système d'enregistrement:	Polarisation C.C., effacement magnétique
Vitesse de bande:	4,8 cm/sec.
Pleurage et scintillement:	0,13% (WRMS)
Durée de lecture:	1 heure avec cassette C-60
Pistes:	Enregistrement et lecture stéréo 4 pistes, 2 canaux

Ces spécifications sont sujettes à des changements sans préavis.

SYMBOLES UTILISES DANS LE SCHEMA

Remarques:

1. S1-1~S1-6: Commutateur enregistrement/lecture en position "Lecture". (1 . . . Lecture, 3 . . . Enregistrement)
2. S2-1~S2-8: Sélecteur de gamme d'onde en position "FM". (1 . . . "FM", 2 . . . "LW", 3 . . . "MW", 4 . . . "SW")
3. S3-1~S3-6: Commutateur de fonction en position "TAPE/OFF". (1 . . . "TAPE/OFF", 3 . . . "RADIO")
4. S4-1, S4-2: Commutateur de mode en position "FM MONO". (1 . . . FM MONO, 2 . . . STEREO, 3 . . . AMBIENCE)
5. S5: Commutateur "ON/OFF" du moteur en position "OFF".
6. S6: Sélecteur C.A./C.C. en position "DC IN".
7. VR1: Réglage de fréquence de l'oscillateur VCO.
8. VR101, 201: Commande de tonalité.
9. VR102, 202: Potentiomètre de volume.
10. VR301: Commande de balance.
11. La marque (▼) signale un point de vérification. Ex.: ▼1=point de vérification 1.
12. La marque (※) signale une résistance imprimée.
13. La tension C.C. est mesurée au moyen d'un voltmètre électronique à partir de la borne négative de la pile.
    < > . . . Position FM, ( ) . . . Position AM,
    [ ] . . . Position Enregistrement,
    Non marque . . . Position Lecture.
14. Courant des piles: Pas de signal . . . . . 70 mA
    Sortie maximum (Radio) . . . . . 825 mA
    Sortie maximum (Bande) . . . . . 920 mA
15. Remarque importante concernant la sécurité
    Les pièces marquées ⚠ ont des caractéristiques spéciales, importantes pour la sécurité.
    Lors du remplacement d'une de ces pièces, n'utiliser que les pièces spécifiées par le fabricant.

ALIGNEMENTS

■ INSTRUCTIONS D'ALIGNEMENT

AVANT DE PROCEDER AUX ALIGNEMENTS, LIRE ATTENTIVEMENT CE QUI SUIT

1. Placer le potentiomètre de volume au maximum.
2. Placer le commande de tonalite sur aigus.
3. Placer le sélecteur de bande sur GO, PO, DC ou FM.
4. Placer la commande de balance au centre.
5. Placer le sélecteur de mode sur "STEREO".
6. Placer le sélecteur de fonctions sur "radio".
7. Placer la commande de syntonisation fine sur sa position centrale.
8. Régler la tension sur 9 V C.C.
9. Régler la sortie du générateur étalonné de façon à ne pas surcharger les circuits.

■ ALIGNEMENT GO, PO, et OC

	BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE ELECTRONIQUES)	REGLAGE	OBSERVATIONS
		BRANCHEMENTS	FREQUENCE				
		ALIGNEMENT IF sur AM					
(1)	PO	Faire une boucle de plusieurs tours de fil et émettre ls signal dans la boucle du récepteur.	455 kHz (modulation de 30% à 400 Hz)	Point de non-interférence. (à/ environ 600 kHz)	Voltmètre branché à la bobine oscillatrice.	T2 (AM IFT)	Régler pour une sortie maximum.
		ALIGNEMENT HF sur GO					
(2)	GO	〃	136 kHz	Condensateur variable totalement fermé.	〃	L9 (bobine d'oscillateur GO)	〃
(3)	GO	〃	297 kHz	Condensateur variable ouvert à fond.	〃	CT5 (trimmer d'oscillateur GO)	〃
(4)	GO	〃	145 kHz	Syntoniser sur le signal.	〃	(*1) L6 (bobine d'antenne GO)	Régler pour une sortie maximum en glissant la bobine L6 le long du noyau en ferrite.
(5)	GO	〃	285 kHz	〃	〃	CT3 (trimmer d'antenne GO)	Régler pour une sortie maximum. Refaire les étapes (2) à (5).
		ALIGNEMENT HF sur PO					
(6)	PO	〃	511 kHz	Condensateur variable totalement fermé.	〃	L10 (bobine d'oscillateur PO)	Régler pour une sortie maximum.
(7)	PO	〃	1.650 kHz	Condensateur variable ouvert à fond.	〃	CT6 (trimmer d'oscillateur PO)	〃
(8)	PO	〃	550 kHz	Syntoniser sur le signal.	〃	(*1) L7 (bobine d'antenne PO)	Régler pour une sortie maximum en glissant la bobine L7 le long du noyau en ferrite.
(9)	PO	〃	1.500 kHz	〃	〃	CT4 (trimmer d'antenne PO)	Régler pour une sortie maximum. Refaire les étapes (6) à (9).
	(*1) Sceller la bobine d'antenne à la cire après avoir achevé l'alignement.						
		ALIGNEMENT HF sur OC					
(10)	OC	Brancher au point ▼1 par un condensateur en céramique (10 pF) Côté nétagif au point ▼2.	5,75 MHz	Condensateur variable totalement fermé.	〃	L11 (bobine d'oscillateur OC)	Régler pour une sortie maximum.
(11)	OC		18,8 MHz	Condensateur variable ouvert à fond.	〃	CT7 (trimmer d'oscillateur OC)	〃
(12)	OC		5,9 MHz	Syntoniser sur le signal.	〃	L8 (bobine d'antenne OC)	Régler pour une sortie maximum. Refaire les étapes (10) à (12).

ALIGNEMENTS

■ INSTRUCTIONS D'ALIGNEMENT

AVANT DE PROCEDER AUX ALIGNEMENTS, LIRE ATTENTIVEMENT CE QUI SUIT

1. Placer le potentiomètre de volume au maximum.
2. Placer le commande de tonalite sur aigus.
3. Placer le sélecteur de bande sur GO, PO, DC ou FM.
4. Placer la commande de balance au centre.
5. Placer le sélecteur de mode sur "STEREO".
6. Placer le sélecteur de fonctions sur "radio".
7. Placer la commande de syntonisation fine sur sa position centrale.
8. Régler la tension sur 9 V C.C.
9. Régler la sortie du générateur étalonné de façon à ne pas surcharger les circuits.

■ ALIGNEMENT GO, PO, et OC

	BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE ELECTRONIQUES)	REGLAGE	OBSERVATIONS
		BRANCHEMENTS	FREQUENCE				
		ALIGNEMENT IF sur AM					
(1)	PO	Faire une boucle de plusieurs tours de fil et émettre ls signal dans la boucle du récepteur.	455 kHz (modulation de 30% à 400 Hz)	Point de non-interférence. (à/ environ 600 kHz)	Voltmètre branché à la bobine oscillatrice.	T2 (AM IFT)	Régler pour une sortie maximum.
		ALIGNEMENT HF sur GO					
(2)	GO	,,	136 kHz	Condensateur variable totalement fermé.	,,	L9 (bobine d'oscillateur GO)	,,
(3)	GO	,,	297 kHz	Condensateur variable ouvert à fond.	,,	CT5 (trimmer d'oscillateur GO)	,,
(4)	GO	,,	145 kHz	Syntoniser sur le signal.	,,	(*1) L6 (bobine d'antenne GO)	Régler pour une sortie maximum en glissant la bobine L6 le long du noyau en ferrite.
(5)	GO	,,	285 kHz	,,	,,	CT3 (trimmer d'antenne GO)	Régler pour une sortie maximum. Refaire les étapes (2) à (5).
		ALIGNEMENT HF sur PO					
(6)	PO	,,	511 kHz	Condensateur variable totalement fermé.	,,	L10 (bobine d'oscillateur PO)	Régler pour une sortie maximum.
(7)	PO	,,	1.650 kHz	Condensateur variable ouvert à fond.	,,	CT6 (trimmer d'oscillateur PO)	,,
(8)	PO	,,	550 kHz	Syntoniser sur le signal.	,,	(*1) L7 (bobine d'antenne PO)	Régler pour une sortie maximum en glissant la bobine L7 le long du noyau en ferrite.
(9)	PO	,,	1.500 kHz	,,	,,	CT4 (trimmer d'antenne PO)	Régler pour une sortie maximum. Refaire les étapes (6) à (9).
	(*1) Sceller la bobine d'antenne à la cire après avoir achevé l'alignement.						
		ALIGNEMENT HF sur OC					
(10)	OC	Brancher au point ▼1 par un condensateur en céramique (10 pF) Côté nétagif au point ▼2.	5,75 MHz	Condensateur variable totalement fermé.	,,	L11 (bobine d'oscillateur OC)	Régler pour une sortie maximum.
(11)	OC		18,8 MHz	Condensateur variable ouvert à fond.	,,	CT7 (trimmer d'oscillateur OC)	,,
(12)	OC		5,9 MHz	Syntoniser sur le signal.	,,	L8 (bobine d'antenne OC)	Régler pour une sortie maximum. Refaire les étapes (10) à (12).

■ ALIGNEMENT FM

	BANDE	GENERATEUR ETALONNE ou GENERATEUR DE BALAYAGE		POSITION DE L'AIGUILLE SUR LE CADRAN	INDICATEUR (VOLTMETRE ou OSCILLOSCOPE ELECTRONIQUES)	REGLAGE	OBSERVATIONS
		BRANCHEMENTS	FREQUENCE				
		ALIGNEMENT IF sur FM					
(1)	FM	Brancher au point ▼3 via 0,001 μF. Côte négatif au point ▼2.	10,7 MHz (SWP.)	Point de non-interférence. (à/environ 90 MHz)	Brancher la sonde vert. de l'oscilloscope au point ▼3. Côté négatif au point ▼5.	T1 (FM 1ère IFT)	Régler pour une amplitude maximum. (Voir fig. 16.)
(2)	FM	,,	,,	,,	,,	T3 (FM 2ème IFT)	Régler pour une amplitude maximum. (Voir fig. 17.)
		ALIGNEMENT HF sur FM					
(3)	FM	Brancher au point ▼1 via une antenne fictive FM. Côté négatif au point ▼2.	87,5 MHz	Condensateur variable totalement fermé.	Voltmètre branché à la bobine oscillatrice.	L5 (bobine d'oscillateur FM)	(*2) Régler pour une sortie maximum.
(4)	FM		109,2 MHz	Condensateur variable ouvert à fond.	,,	CT2 (trimmer d'oscillateur FM)	,,
(5)	FM		106 MHz	Syntoniser sur le signal	,,	CT1 (trimmer d'antenne FM)	(*2) Régler pour une sortie maximum. Refaire les étapes (3) à (5).
	(*2) Il y aura trois réponses de sortie; la syntonisation adéquate est la fréquence du milieu.						

■ ALIGNEMENT DE LA SEPARATION

ELEMENT	GENERATEUR DE SIGNAUX FM BRANCHEMENT SUR LA SOURCE	BRANCHEMENT A L'EQUIPMENT (COMPTEUR ELECTRONIQUE)	REGLAGE	SPECIFICATION	REMARQUES
Réglage du signal pilote.	98 MHz, 60 dB Brancher au point de coupure ▼1 par l'intermédiaire d'une antenne FM fictive. Côté négatif au point de coupure ▼2.	▼5 . . . (+) ▼3 . . . (−)	VR1	19 kHz	Régler VR1 pour 19 kHz (±100 Hz) en effectuant la lecture sur le compteur électronique.

■ ALIGNEMENTS CORDE

ELEMENT	ENTREE	POINT DE MESURE	SPECIFICATION	POINT DE REGLAGE	OBSERVATIONS
Azimuth	QZZCFM (8 kHz, −20 dB)	EXT SP	Régler pour une sortie maximum.	Vis d'azimut	Mode de lecture (Voir fig. 13.)
Corde Vitesse	QZZCWAT (3 kHz)	EXT SP	3000±90 Hz	Automobile	Mode de lecture (Voir fig. 15.)

RX-F2LS DEUTSCH

■ TECHNISCHE DATEN

Allgemeines:

Stromversorgung:	Wechselstrom: 220 V, 50 Hz Batterien: 9 V (sechs Trockenbatterien der Größe "D": National UM-1 o.ä.) Kraftwagenbatterie: über den Kraftwagenadaptor RP-917
Leistungsaufnahme:	16 W (bei Netzbetrieb)
Ausgangsleistung:	max. 7 W (2×3,5 W) eff.
Lautsprecher:	Dynamischer PM-Lautsprecher, ∅10 cm (3Ω)
Eingangsspannungen:	DC IN: 9 V
Ausgangsimpedanzen:	EXT SP: 3~8Ω HEADPHONES: 32Ω
Abmessungen (B×H×T):	428×133×100 mm
Gewicht (ohne Batterien):	2,5 kg

Empfangsteil:

Wellenbereiche:	UKW: 87,5~108 MHz LW: 150~285 kHz (2000~1060 m) MW: 520~1610 kHz (577~186 m) KW: 5,9~18 MHz (50,8~16,7 m)
Zwischenfrequenz:	UKW: 10,7 MHz LW/MW/KW: 455 kHz
Empfindlichkeit:	UKW: 2,8μV (−3 dB Grenzempfindlichkeit) LW: 112μV/m bei 50 mW Ausgangsleistung MW: 116μV/m bei 50 mW Ausgangsleistung KW: 9,2μV bei 50 mW Ausgangsleistung

Tonbandteil:

Frequenzgang:	100~8.000 Hz (Normalband)
Aufnahmesystem:	Gleichstrom-Vormagnetisierung, Magnetlöschung
Bandgeschwindigkeit:	4,8 cm/s
Gleichlaufschwankungen:	0,13% bewertet (WRMS)
Spieldauer:	1 Stunde mit Cassette C-60
Spurlage:	Stereoaufnahme und -wiedergabe auf 4 Spuren/2 Kanälen

Änderungen vorbehalten.

BEZEICHNUNGEN IN DER SCHEMATISCHEN DARSTELLUNG

Bemerkungen:

1. S1-1~S1-6: Aufnahme-/Wiedergabeschalter auf „Wiedergabe". (1 . . . Wiedergabe, 3 . . . Aufnahme)
2. S2-1~S2-8: Wellenbereichsschalter auf „FM". (1=FM, 2=LW, 3=MW, 4=SW)
3. S3-1~S3-6: Funktionsschalter auf „TAPE/OFF". (1=TAPE/OFF, 3=RADIO)
4. S4-1, S4-2: Betriebsart Schalter auf „FM MONO". (1 . . . FM MONO, 2 . . . STEREO, 3 . . . AMBIENCE)
5. S5: EIN/AUS-Schalter des Motors auf „OFF".
6. S6: Wahlschalter für Gleichstrom- oder Wechselstrombetrieb auf „DC IN".
7. VR1: Einstellung der spannungsgesteuerten Oszillatorfrequenz.
8. VR101, 201: Klangregler.
9. VR102, 202: Lautstärkeregler.
10. VR301: Balanceregler.
11. Die Markierung (▼) bezeichnet einen Meßpunkt, z.B. ▼=Meßpunkt 1.
12. Die Markierung (*) bezeichnet einen gedruckten Widerstand.
13. Alle Gleichspannungen sind mit einem Elektronikvoltmeter vom negativen Batterieanschluß aus zu messen.
    < > . . . Stellung „FM", ( ) . . . Stellung „AM",
    [ ] . . . Stellung „Aufnahme",
    Nein marke . . . Stellung „Wiedergabe".
14. Batteriestrom: ohne Signal . . . . . 70 mA
    bei maximaler Ausgangsleistung (Radio) . . . . . 825 mA
    bei maximaler Ausgangsleistung (Cassette) . . . . . 920 mA
15. Zur Betriebssicherheit
    Die im Schaltplan mit ⚠ gekennzeichneten Bauteile sind für einen sicheren Betrieb dieses Gerätes besonders wichtig und sollten daher nur durch Originalbauteile ersetzt werden.

ABGLEICH

■ VORGANGSWEISE BEIM ABGLEICH

BITTE DIESEN ABSCHNITT VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN

1. Den Lautstärkeregler in die Maximalposition stellen.
2. Den Klangregler in die Höhenposition stellen.
3. Den Wellenbereichsschalter auf LW, MW, KW oder UKW stellen.
4. Den Balanceregler in die Mittelposition stellen.
5. Den Betriebsart Schalter auf „STEREO" stellen.
6. Den Funktionsschalter auf „radio" stellen.
7. Drehen Sie den Feinabstimmregler in die Mittelstellung.
8. Eine Gleichspannung von 9 V anlegen.
9. Der Signalgeneratorausgang sollte nicht größer sein, als für eine Ausgangsanzeige unbedingt notwendig ist.

■ LW-, MW- und KW-ABGLEICH

	WELLENBAND	SIGNALGENERATOR oder WOBBELGENERATOR: ANSCHLÜSSE	SIGNALGENERATOR oder WOBBELGENERATOR: FREQUENZ	STELLUNG DES ABSTIMM-REGLERS	MESSGERÄT (ELEKTRONIK-VOLTMETER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN
			AM-ZF-ABGLEICH				
(1)	MW	Aus einem Draht einige Schleifen-windungen bilden und das Signal in die Empfängerschleife abstrahlen.	455 kHz, 30% mod. (Modulationsfrequenz 400 Hz)	Der Abstimmpunkt, wo keine Interferenz auftritt. (ungefähr bei 600 kHz)	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule.	T2 (AM-ZF-Abgleich)	Die maximale Ausgangsleistung einstellen.
			LW-HF-ABGLEICH				
(2)	LW	〃	136 kHz	Drehkondensator ganz geschlossen.	〃	L9 (LW-Oszillatorspule)	〃
(3)	LW	〃	297 kHz	Drehkondensator ganz aufgedreht.	〃	CT5 (LW-Oszillatortrimmer)	〃
(4)	LW	〃	145 kHz	Das Signal abstimmen.	〃	(*1) L6 (LW-Antennenspule)	Die maximale Ausgangsleistung einstellen. L6 durch Verschieben am Ferritkern abgleichen.
(5)	LW	〃	285 kHz	〃	〃	CT3 (LW-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (2) bis (5) wiederholen.
			MW-HF-ABGLEICH				
(6)	MW	〃	511 kHz	Drehkondensator ganz geschlossen.	〃	L10 (MW-Oszillatorspule)	Die maximale Ausgangsleistung einstellen.
(7)	MW	〃	1.650 kHz	Drehkondensator ganz aufgedreht.	〃	CT6 (MW-Oszillatortrimmer)	〃
(8)	MW	〃	550 kHz	Das Signal abstimmen.	〃	(*1) L7 (MW-Antennenspule)	Die maximale Ausgangsleistung einstellen. L7 durch Verschieben am Ferritkern abgleichen.
(9)	MW	〃	1.500 kHz	〃	〃	CT4 (MW-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (6) bis (9) wiederholen.
	(*1) Nach beendetem Abgleich ist der Antennenspulenkörper mit Wachs zu befestigen.						
			KW-HF ABGLEICH				
(10)	KW	Über einen Keramikkondensator (10 pF) an den Meßpunkt ▼1 anschließen. Den negativen Ausgang an den Meßpunkt ▼2 anschließen.	5,75 MHz	Drehkondensator ganz geschlossen.	〃	L11 (KW-Oszillatorspule)	Die maximale Ausgangsleistung einstellen.
(11)	KW		18,8 MHz	Drehkondensator ganz aufgedreht.	〃	CT7 (KW-Oszillatortrimmer)	〃
(12)	KW		5,9 MHz	Das Signal abstimmen.	〃	L8 (KW-Antennenspule)	Die maximale Ausgangsleistung einstellen. Die Schritte (10) bis (12) wiederholen.

■ UKW-

	WE LE BA
(1)	UK
(2)	UK
(3)	UK
(4)	UK
(5)	UK
	(*2)

■ KANA

	P
	Einst Pilott

■ BAND

	EIN
	Azim
	Band Gesc

ABGLEICH

■ VORGANGSWEISE BEIM ABGLEICH

BITTE DIESEN ABSCHNITT VOR DEM ABGLEICH SORGFÄLTIG DURCHLESEN

1. Den Lautstärkeregler in die Maximalposition stellen.
2. Den Klangregler in die Höhenposition stellen.
3. Den Wellenbereichsschalter auf LW, MW, KW oder UKW stellen.
4. Den Balanceregler in die Mittelposition stellen.
5. Den Betriebsart Schalter auf „STEREO" stellen.
6. Den Funktionsschalter auf „radio" stellen.
7. Drehen Sie den Feinabstimmregler in die Mittelstellung.
8. Eine Gleichspannung von 9 V anlegen.
9. Der Signalgeneratorausgang sollte nicht größer sein, als für eine Ausgangsanzeige unbedingt notwendig ist.

■ LW-, MW- und KW-ABGLEICH

	WELLENBAND	SIGNALGENERATOR oder WOBBELGENERATOR: ANSCHLÜSSE	SIGNALGENERATOR oder WOBBELGENERATOR: FREQUENZ	STELLUNG DES ABSTIMMREGLERS	MESSGERÄT (ELEKTRONIKVOLTMETER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN
		AM-ZF-ABGLEICH					
(1)	MW	Aus einem Draht einige Schleifenwindungen bilden und das Signal in die Empfängerschleife abstrahlen.	455 kHz, 30% mod. (Modulationsfrequenz 400 Hz)	Der Abstimmpunkt, wo keine Interferenz auftritt. (ungefähr bei 600 kHz)	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule.	T2 (AM-ZF-Abgleich)	Die maximale Ausgangsleistung einstellen.
		LW-HF-ABGLEICH					
(2)	LW	,,	136 kHz	Drehkondensator ganz geschlossen.	,,	L9 (LW-Oszillatorspule)	,,
(3)	LW	,,	297 kHz	Drehkondensator ganz aufgedreht.	,,	CT5 (LW-Oszillatortrimmer)	,,
(4)	LW	,,	145 kHz	Das Signal abstimmen.	,,	(*1) L6 (LW-Antennenspule)	Die maximale Ausgangsleistung einstellen. L6 durch Verschieben am Ferritkern abgleichen.
(5)	LW	,,	285 kHz	,,	,,	CT3 (LW-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (2) bis (5) wiederholen.
		MW-HF-ABGLEICH					
(6)	MW	,,	511 kHz	Drehkondensator ganz geschlossen.	,,	L10 (MW-Oszillatorspule)	Die maximale Ausgangsleistung einstellen.
(7)	MW	,,	1.650 kHz	Drehkondensator ganz aufgedreht.	,,	CT6 (MW-Oszillatortrimmer)	,,
(8)	MW	,,	550 kHz	Das Signal abstimmen.	,,	(*1) L7 (MW-Antennenspule)	Die maximale Ausgangsleistung einstellen. L7 durch Verschieben am Ferritkern abgleichen.
(9)	MW	,,	1.500 kHz	,,	,,	CT4 (MW-Antennentrimmer)	Die maximale Ausgangsleistung einstellen. Die Schritte (6) bis (9) wiederholen.
	(*1) Nach beendetem Abgleich ist der Antennenspulenkörper mit Wachs zu befestigen.						
		KW-HF ABGLEICH					
(10)	KW	Über einen Keramikkondensator (10 pF) an den Meßpunkt ▼1 anschließen. Den negativen Ausgang an den Meßpunkt ▼2 anschließen.	5,75 MHz	Drehkondensator ganz geschlossen.	,,	L11 (KW-Oszillatorspule)	Die maximale Ausgangsleistung einstellen.
(11)	KW		18,8 MHz	Drehkondensator ganz aufgedreht.	,,	CT7 (KW-Oszillatortrimmer)	,,
(12)	KW		5,9 MHz	Das Signal abstimmen.	,,	L8 (KW-Antennenspule)	Die maximale Ausgangsleistung einstellen. Die Schritte (10) bis (12) wiederholen.

■ UKW-ABGLEICH

	WELLENBAND	SIGNALGENERATOR oder WOBBELGENERATOR: ANSCHLÜSSE	SIGNALGENERATOR oder WOBBELGENERATOR: FREQUENZ	STELLUNG DES ABSTIMMREGLERS	MESSGERÄT (ELEKTRONIKVOLTMETER oder OSZILLOSKOP)	ABGLEICH	BEMERKUNGEN
		UKW-ZF-ABGLEICH					
(1)	UKW	Über einen 0,001 μF-Kondensator an den Meßpunkt ▼3 anschließen. Den negativen Ausgang an den Meßpunkt ▼2 anschließen.	10,7 MHz (SWP.)	Der Abstimmpunkt, wo keine Interferenz auftritt (ungefähr bei 90 MHz).	Die Vertikalamplitude des Oszilloskops an den Meßpunkt ▼3 anschließen. Den negativen Ausgang an den Meßpunkt ▼5 anschließen.	T1 (1. UKW-ZF-Abgleich)	Die Maximalamplitude einstellen. (Siehe Abb. 16.)
(2)	UKW	,,	,,	,,	,,	T3 (2. UKW-ZF-Abgleich)	Die Maximalamplitude einstellen. (Siehe Abb. 17.)
		UKW-HF-ABGLEICH					
(3)	UKW	Über eine künstliche UKW-Antenne an den Meßpunkt ▼1 anschließen. Den negativen Ausgang an den Meßpunkt ▼2 anschließen.	87,5 MHz	Drehkondensator ganz geschlossen.	Ausgangsleistungsmesser parallel zur Lautsprecher-Schwingspule.	L5 (UKW-Oszillatorspule)	(*2) Die maximale Ausgangsleistung einstellen.
(4)	UKW		109,2 MHz	Drehkondensator ganz aufgedreht.	,,	CT2 (UKW-Oszillatortrimmer)	,,
(5)	UKW		106 MHz	Das Signal abstimmen.	,,	CT1 (UKW-Antennentrimmer)	(*2) Die maximale Ausgangsleistung einstellen. Die Schritte (3) bis (5) wiederholen.
	(*2) Es gibt drei verschiedene Ausgangsfrequenzkurven. Stimmen Sie die Mittelfrequenz ab.						

■ KANALTRENNUNGSABGLEICH

PRÜFUNG	UKW-MESSENDER SOURCE-ANSCHLUSS	GERÄTEANSCHLUSS (ELEKTRONISCHER ZÄHLER)	EINSTELLUNG	ANGABEN	BEMERKUNGEN
Einstellung des Pilottons	98 MHz, 60 dB Am Prüfpunkt ▼1 über eine künstliche UKW-Antenne anschließen, die negative Seite mit dem Prüfpunkt ▼2 verbinden.	▼6 . . . (+) ▼8 . . . (−)	VR1	19 kHz	Mit dem elektronischen Zähler den Spannungskonstanthalter (VR1) auf 19 kHz (±100 Hz) einstellen.

■ BAND-ABGLEICH

EINSTELLUNG	EINGANG	MESSPUNKT	MESSWERT	EINSTELLPUNKT	BEMERKUNGEN
Azimut	QZZCFM (8 kHz, −20 dB)	EXT SP	Die maximale Ausgangsleistung einstellen.	Azimut-Einstellschraube	bei Wiedergabe (Siehe Abb. 13.)
Band Geschwindigkeit	QZZCWAT (3 kHz)	EXT SP	3000±90 Hz	Motor	bei Wiedergabe (Siehe Abb. 15.)

Ref. No.	Part No.	Part Name & Description	Per Set
		ELECTRICAL PARTS	
E1	RUA560Z	Dial Chassis	1
E2	RJS2L3Z	Socket, 2 Pin	1
E3	RJS3L3Z	Socket, 3 Pin	1
E4	RJP2G4Y	Plug, CP1	1
E5	RJP3G4Y	Plug, CP2	1
E6	RJT707Z	Terminal, Socket	5
E7	RUB290Z	Lever, Record/Playback	1
E8	RBD225Z	Knob, Function	1
E9	RBD229Z	Knob, Mode	1
E10	RBD230Z	Knob, Band	1
E11	RDP880Z	Pointer, Dial	1
E12	RDG5720Z	Drum, Dial	1
E13	RDT9139Z	Shaft, Tuning	1
E14	RDV16Z	Dial Belt	1
E15	RJM144Z	Microphone	2
E16	RHG553Z	Rubber, Microphone	2
E17	RJC515Z	Spring, Battery - Side	1
E18	RMP211Z	Holder, LED	1
E19	RHR1220Z	Holder, Microphone	1
E20	RKE440Z	Knob Holder, For Silver & White Cabinet	2
E20	RKE440Z1	Knob Holder, For Metalic Brown & Red Cabinet	2
E21	RKE441Z	Jack Board	1
E22	XSN26+8	Screw, Drum M'tg	1 S
E23	XWA26B	Washer, Drum M'tg	1 S
E24	XTV3+12G	Screw, Circuit Board etc M'tg	17
E25	RNW830Z	Washer, Tuning Shaft	1
E26	XTW3+20Q	Screw, Record Lever M'tg	1
E27	XBA2C10TR0	Fuse	1 ⚠
E28	QTF1054	Holder, Fuse	2
		ACCESSORIES	
	RJA20Z	Power Cord, AC, Except U.K.	1 ⚠
	RJA43Z	Power Cord, AC, For U.K.	1 ⚠
		PACKING MATERIALS	
	RPP599Z	Polyethylene Cover	1
	RPN9455Z	Pad Complete	1
	RPK1765Z	Gift Box	1
	QQC1023	Caution Tag, For U.K.	1
		PRINTED MATERIAL	
	RQX4278Z	Instruction Book	1

Ref. No.	Part No.	Value
	RESISTORS	
R25	ERD25FJ102	1K S
R26	ERD25FJ102	1K S
R106	ERD25TJ823	82K S
R114	ERD25FJ1R0	1 S
R115	ERD25FJ101	100 S
R206	ERD25TJ823	82K S
R214	ERD25FJ1R0	1 S
R215	ERD25FJ101	100 S
R303	ERD25TJ105	1M S
R308	ERD25FJ470	47 S
	CAPACITORS	
C1	ECCD1H120KC	12P
C2	ECCD1H270KC	27P
C4	ECCD1H470KC	47P
C5	ECCD1H120KC	12P
C6	ECCD1H180KC	18P
C7	ECCD1H150KC	15P
C8	ECCD1H040C	4P
C9	ECCD1H331K	330P
C10	ECCD1H330KC	33P
C11	ECKD1H103MD	0.01
C13	ECCD1H150KC	15P
C14	ECQP2A221JZ	220P
C15	ECQP2A361JZ	360P
C16	ECQP2A392JZ	3900P
C17	ECCD1H040C	4P
C18	ECKD1H102MD	0.001
C19	ECCD1H331K	330P
C20	ECKD1H102KB	0.001
C21	ECCD1H180KC	18P
C22	ECKD1H102ZF	0.001
C23	ECFT1E223MD	0.022
C24	ECCD1H181K	180P
C25	ECFT1E473MD	0.047
C26	ECCD1H560K	56P
C27	ECCD1H101K	100P
C28	ECFT1E473MD	0.047
C29	ECCD1H330KC	33P
C30	ECEA1AS470	47 S
C31	ECEA1HS100	10 S
C32	ECFT1E223MD	0.022
C33	ECFT1E103MD	0.01
C34	ECEA50ZR1	0.1 S
C35	ECEA1AS221	220 S
C36	ECKD1H471KB	470P
C37	ECEA25Z4R7	4.7 S
C39	ECFT1E153MD	0.015
C40	ECQP2A102JZ	1000P
C42	ECEA50ZR1	0.1 S
C43	ECEA50Z1	1 S
C44	ECKD1H103MD	0.01
C45	ECFT1E153MD	0.015
C46	ECFT1E153MD	0.015
C47	ECEA50Z1	1 S
C48	ECEA50Z1	1 S
C49	ECCD1H040C	4P
C50	ECKD1H103MD	0.01
C51	ECKD1H102MD	0.001
C52	ECFT1E223MD	0.022
C53	ECKD1H103MD	0.01
C54	ECKD1H103MD	0.01
C55	ECEA50ZR1	0.1 S
C57	ECQP2A151JZ	150P
C58	ECCD1H030C	3P
C80	ECCD1H331K	330P
C101	ECFT1E473MD	0.047
C102	ECFT1E223MD	0.022
C103	ECKD1H152MD	0.0015
C104	ECKD1H682MD	0.0068
C105	ECEA1HSR22	0.22
C106	ECKD1H471KB	470P
C107	ECEA1AS101	100 S
C108	ECEA50Z1	1 S
C109	ECFT1E153MD	0.015
C110	ECEA50Z1	1 S
C111	ECEA50Z1	1 S
C112	ECFT1E683MD	0.068
C113	ECEA50ZR33	0.33 S
C114	ECEA1AS101	100 S
C115	ECEA1AS470	47 S
C116	ECKD1H152MD	0.0015
C117	ECEA0JS471	470 S
C118	ECFT1E104MD	0.1
C120	ECFT1E473MD	0.047
C201	ECFT1E473MD	0.047
C202	ECFT1E223MD	0.022
C203	ECKD1H152MD	0.0015
C204	ECKD1H682MD	0.0068
C205	ECEA50ZR22	0.22 S
C206	ECKD1H471KB	470P
C207	ECEA1AS101	100 S
C208	ECEA50Z1	1 S
C209	ECFT1E153MD	0.015
C210	ECEA50Z1	1 S
C211	ECEA50Z1	1 S
C212	ECFT1E683MD	0.068
C213	ECEA50ZR33	0.33 S
C214	ECEA1AS101	100 S
C215	ECEA1AS470	47 S
C216	ECKD1H152MD	0.0015
C217	ECEA0JS471	470 S
C218	ECFT1E104MD	0.1
C219	ECCD1H101K	100P
C220	ECFT1E473MD	0.047
C221	ECCD1H331K	330P
C302	ECEA1AS101	100 S
C303	ECEA1HS100	10 S
C304	ECEA1AS101	100 S
C305	ECFT1E153MD	0.015
C306	ECFT1E103MD	0.01
C307	ECEA50ZR47	0.47 S
C309	ECEA1AS101	100 S
C310	ECCD1H101K	100P
C311	ECKD1H103ZF	0.01
C312	ECEA1AS221	220 S
C313	ECEA1CS222	2200 S
C315	ECEA1AS101	100 S
C316	ECEA1CS102	1000 S
C317	ECKD1H103ZF	0.01
C318	ECKD1H103ZF	0.01
C319	ECKD1H103ZF	0.01
C320	ECKD1H103ZF	0.01

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